Do-it-yourself service precautions

If you perform maintenance by yourself, be sure to follow the correct procedures as given in these sections.

Items	Parts and tools
Battery condition (→P. 474)	• Warm water • Baking soda • Grease • Conventional wrench (for terminal clamp bolts)
Brake fluid level (→P. 472)	• FMVSS No.116 DOT 3 or SAE J1703 brake fluid • Rag or paper towel • Funnel (used only for adding brake fluid)
Engine coolant level (→P. 470)	• "Toyota Super Long Life Coolant" or similar high quality ethylene glycol-based non-silicate, non-amine, non-nitrite and non-borate coolant with long-life hybrid organic acid technology. For the U.S.A.: "Toyota Super Long Life Coolant" is pre-mixed with 50% coolant and 50% deionized water. For Canada: "Toyota Super Long Life Coolant" is pre-mixed with 55% coolant and 45% deionized water. • Funnel (used only for adding engine coolant)

Items	Parts and tools
Engine oil level (→P. 466)	• "Toyota Genuine Motor Oil" or equivalent • Rag or paper towel • Funnel (used only for adding engine oil)
Fuses (→P. 498)	• Fuse with same amperage rating as original
Tire inflation pressure (→P. 487)	• Tire pressure gauge • Compressed air source
Headlight aim (→P. 509)	• Phillips-head screwdriver
Radiator and condenser (→P. 472)	—
Washer fluid (→P. 477)	• Water washer fluid containing anti-freeze (for winter use) • Funnel (used only for adding water or washer fluid)

CAUTION

The engine compartment contains many mechanisms and fluids that may move suddenly, become hot, or become electrically energized. To avoid death or serious injury, observe the following precautions:

When working on the engine compartment

- Keep hands, clothing and tools away from the moving fan and engine drive belt.
- Be careful not to touch the engine, radiator, exhaust manifold, etc. right after driving as they may be hot. Oil and other fluids may also be hot.
- Do not leave anything that may burn easily, such as paper or rags, in the engine compartment.
- Do not smoke, cause sparks or expose an open flame to fuel or the battery. Fuel and battery fumes are flammable.
- Be extremely cautious when working on the battery. It contains poisonous and corrosive sulfuric acid.

When working near the electric cooling fan or radiator grille

Be sure the “ENGINE START STOP” switch is off.
With the “ENGINE START STOP” switch in IGNITION ON mode, the electric cooling fan may automatically start to run if the air conditioning is on and/or the coolant temperature is high. (→P. 472)

Safety glasses

Wear safety glasses to prevent flying or falling material, fluid spray, etc. from getting in the eyes.

 NOTICE

If you remove the air cleaner filter

Driving with the air cleaner filter removed may cause excessive engine wear due to dirt in the air. Also a backfire could cause a fire in the engine compartment.

Hood

Release the lock from the inside of the vehicle to open the hood.

Pull the hood lock release lever.

The hood will pop up slightly.

Pull up the hood catch and lift the hood.

⚠ CAUTION

Pre-driving check

Check that the hood is fully closed and locked.
If the hood is not locked properly, it may open while the vehicle is in motion and cause an accident, which may result in death or serious injury.

Positioning a floor jack

When raising your vehicle with a floor jack, position the jack correctly. Improper placement may damage your vehicle or cause injury.

■ Front

■ Rear

CAUTION

When raising your vehicle

Make sure to observe the following precautions to reduce the possibility of death or serious injury:

- Lift up the vehicle using a floor jack such as the one shown in the illustration.
- When using a floor jack, follow the instructions of the manual provided with the jack.
- Do not use the jack that was supplied with your vehicle.
- Do not put any part of your body underneath the vehicle when it is supported only by the floor jack.
- Always use floor jack and/or automotive jack stands on a solid, flat, level surface.
- Do not start the engine while the vehicle is supported by the floor jack.
- Stop the vehicle on level, firm ground, firmly set the parking brake and shift the shift lever to P.
- Make sure to set the floor jack properly at the jack point.
  Raising the vehicle with an improperly positioned floor jack will damage the vehicle and may cause the vehicle to fall off the floor jack.
- Do not raise the vehicle while someone is in the vehicle.
- When raising the vehicle, do not place any objects on top of or underneath the floor jack.

Engine compartment

1 Engine oil filler cap (→P. 466)

2 Engine oil level dipstick (→P. 466)

3 Battery (→P. 474)

4 Brake fluid reservoir (→P. 472)

5 Fuse box (→P. 498)

6 Engine coolant reservoir (→P. 470)

7 Condenser (→P. 472)

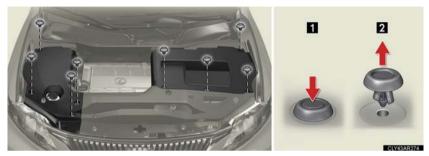
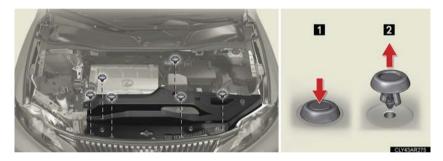
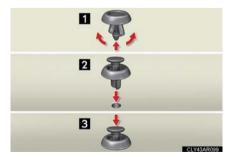
8 Radiator (→P. 472)

9 Electric cooling fans

10 Washer fluid tank (→P. 477)

Engine compartment covers

Removing the engine compartment covers

▶ Outside

▶ Front

Installing the clips

Battery cover

Removing the battery cover.

NOTICE

■ **When installing the battery cover**

Securely install the cover over the battery. Failure to do so may cause water to enter the engine compartment when it rains or the vehicle is washed, resulting in a malfunction.

Engine oil

With the engine at operating temperature and turned off, check the oil level on the dipstick.

Checking the engine oil

STEP 1 Park the vehicle on level ground. After turning off the engine, wait more than 5 minutes for the oil to drain back into the bottom of the engine.

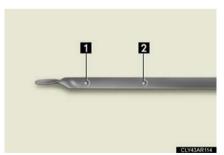
STEP 2

Hold a rag under the end and pull the dipstick out.

STEP 3 Wipe the dipstick clean.

STEP 4 Reinsert the dipstick fully.

STEP 5 Holding a rag under the end, pull the dipstick out and check the oil level.

STEP 6 Wipe the dipstick and reinsert it fully.

1 Low

2 Full

Adding engine oil

If the oil level is below or near the low level mark, add engine oil of the same type as that already in the engine.

Make sure to check the oil type and prepare the items needed before adding oil.

Engine oil selection	→P. 597
Items	Clean funnel

STEP 1 Remove the oil filler cap by turning it counterclockwise.

STEP 2 Add engine oil slowly, checking the dipstick.

STEP 3 Install the oil filler cap by turning it clockwise.

About 1.6 qt. (1.5 L, 1.3 Imp. qt.) is required to raise the oil level from low to full on the dipstick.

- **Engine oil consumption**
  - The amount of engine oil consumed depends on the oil viscosity, the quality of the oil and the way the vehicle is driven.
  - More oil is consumed under driving conditions such as high speeds and frequent acceleration and deceleration.
  - A new engine consumes more oil.
  - When judging the amount of oil consumption, keep in mind that the oil may have become diluted, making it difficult to judge the true level accurately.
  - Oil consumption: Max. 1.1 qt./600 miles (0.9 Imp. qt./600 miles, 1.0 L/1000 km)
  - If your vehicle consumes more than 1.1 qt. (1.0 L, 0.9 Imp. qt.) every 600 miles (1000 km), contact your Lexus dealer.

- **After changing the engine oil (U. S. A. only)**

The engine oil maintenance data should be reset. Perform the following procedure:

STEP 1 Display the trip meter "A" (→P. 167), then turn the "ENGINE START STOP" switch off.

STEP 2 While pressing the "ODO/TRIP" button, turn the "ENGINE START STOP" switch to ON mode.

Keep the "ODO/TRIP" button pressed for about 5 seconds. The resetting procedure is complete when "000000" in the trip meter flashes once and the message in the multi-information display disappears.

CAUTION

■ **Used engine oil**

- Used engine oil contains potentially harmful contaminants which may cause skin disorders such as inflammation or skin cancer, so care should be taken to avoid prolonged and repeated contact. To remove used engine oil from your skin, wash thoroughly with soap and water.
- Dispose of used oil and filters only in a safe and acceptable manner. Do not dispose of used oil and filters in household trash, in sewers or onto the ground. Call your Lexus dealer, service station or auto parts store for information concerning recycling or disposal.
- Do not leave used engine oil within the reach of children.

NOTICE

■ **To prevent serious engine damage**

Check the oil level on a regular basis.

■ **When replacing the engine oil**

- Be careful not to spill engine oil on the vehicle components.
- Avoid overfilling, or the engine could be damaged.
- Check the oil level on the dipstick every time you refill the vehicle.
- Be sure the engine oil filler cap is properly tightened.

Engine coolant

The coolant level is satisfactory if it is between the “FULL” and “LOW” lines on the reservoir when the engine is cold.

1 Reservoir cap

2 “FULL” line

3 “LOW” line

If the level is on or below the “LOW” line, add coolant up to the “FULL” line. (→P. 587)

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n **Coolant selection**

Only use “Toyota Super Long Life Coolant” or a similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite, and non-borate coolant with long-life hybrid organic acid technology.

U.S.A.: “Toyota Super Long Life Coolant” is a mixture of 50% coolant and 50% deionized water. (Minimum temperature: -31°F [-35°C])

Canada: “Toyota Super Long Life Coolant” is a mixture of 55% coolant and 45% deionized water. (Minimum temperature: -44°F [-42°C])

For more details about coolant, contact your Lexus dealer.

If the coolant level drops within a short time after replenishing

Visually check the radiator, hoses, radiator cap, drain cock and water pump.
If you cannot find a leak, have your Lexus dealer test the cap and check for leaks in the cooling systems.

 CAUTION

When the engine is hot

Do not remove the radiator cap.
The cooling system may be under pressure and may spray hot coolant if the cap is removed, causing burns or other injuries.

NOTICE

When adding engine coolant

Coolant is neither plain water nor straight antifreeze. The correct mixture of water and antifreeze must be used to provide proper lubrication, corrosion protection and cooling. Be sure to read the antifreeze or coolant label.

If you spill coolant

Be sure to wash it off with water to prevent damage to parts or paint.

Radiator and condenser

Check the radiator and condenser, and clear away any foreign objects. If either of the above parts are extremely dirty or you are not sure of their condition, have your vehicle checked by your Lexus dealer.

 CAUTION

When the engine is hot

Do not touch the radiator or condenser, as they may be hot and cause burns.

Brake fluid

Checking fluid level

The brake fluid level should be between the “MAX” and “MIN” lines on the tank.

Adding fluid

Make sure to check the fluid type and prepare the necessary item.

Fluid type	FMVSS No.116 DOT 3 or SAE J1703
Items	Clean funnel

n **Brake fluid can absorb moisture from the air**

Excess moisture in the brake fluid can cause a dangerous loss of braking efficiency. Use only newly opened brake fluid.

CAUTION

n **When filling the reservoir**

Take care because brake fluid can harm your hands or eyes and damage painted surfaces.
If fluid gets on your hands or in your eyes, flush the affected area with clean water immediately.

If you still experience discomfort, see a doctor.

NOTICE

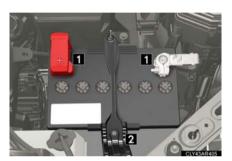
n **If the fluid level is low or high**

It is normal for the brake fluid level to go down slightly as the brake pads wear out or when the fluid level in the accumulator is high.
If the reservoir needs frequent refilling, there may be a serious problem.

Battery

Check the battery as follows.

- **Battery exterior**

  Make sure that the battery terminals are not corroded and that there are no loose connections, cracks, or loose clamps.

1 Terminals

2 Hold-down clamp

- **Before recharging**

  When recharging, the battery produces hydrogen gas which is flammable and explosive. Therefore, observe the following before recharging:

  - If recharging with the battery installed on the vehicle, be sure to disconnect the ground cable.
  - Make sure the power switch on the charger is off when connecting and disconnecting the charger cables to the battery.

- **After recharging/reconnecting the battery**

  In some cases, the engine may not start. Follow the procedure below to initialize the system.

  STEP 1 Shift the shift lever to P, and turn the "ENGINE START STOP" switch OFF.

  STEP 2 Open and close any of the doors.

  STEP 3 Start the engine. (If the engine does not start first time, repeat the procedure.)

  If the engine will not start even after multiple attempts at the above method, contact your Lexus dealer.

CAUTION

- **Chemicals in the battery**

  Batteries contain poisonous and corrosive sulfuric acid and may produce hydrogen gas which is flammable and explosive. To reduce the risk of death or serious injury, take the following precautions while working on or near the battery:

  - Do not cause sparks by touching the battery terminals with tools.
  - Do not smoke or light a match near the battery.
  - Avoid contact with eyes, skin and clothes.
  - Never inhale or swallow electrolyte.
  - Wear protective safety glasses when working near the battery.
  - Keep children away from the battery.

- **Where to safely charge the battery**

  Always charge the battery in an open area. Do not charge the battery in a garage or closed room where there is insufficient ventilation.

- **How to recharge the battery**

  Only perform a slow charge (5 A or less). The battery may explode if charged at a quicker rate.

- **Emergency measures regarding electrolyte**

  - If electrolyte gets in your eyes
    Flush your eyes with clean water for at least 15 minutes and get immediate medical attention. If possible, continue to apply water with a sponge or cloth while traveling to the nearest medical facility.
  - If electrolyte gets on your skin
    Wash the affected area thoroughly. If you feel pain or burning, get medical attention immediately.
  - If electrolyte gets on your clothes
    It can soak through clothing on to your skin. Immediately take off the clothing and follow the procedure above if necessary.
  - If you accidentally swallow electrolyte
    Drink a large quantity of water or milk. Follow with milk of magnesia, beaten raw egg or vegetable oil. Get emergency medical attention immediately.

NOTICE

- **When recharging the battery**

  Never recharge the battery while the engine is running. Also, be sure all accessories are turned off.

Washer fluid

If any washer does not work or the warning message appears on the multi-information display, the washer tank may be empty. Add washer fluid.

CAUTION

- **When adding washer fluid**

  Do not add washer fluid when the engine is hot or running as washer fluid contains alcohol and may catch fire if spilled on the engine etc.

NOTICE

- **Do not use any fluid other than washer fluid**

  Do not use soapy water or engine antifreeze instead of washer fluid.
  Doing so may cause streaking on the vehicle's painted surfaces.

- **Diluting washer fluid**

  Dilute washer fluid with water as necessary.
  Refer to the freezing temperatures listed on the washer fluid tank.

Tires

Replace or rotate tires in accordance with maintenance schedules and treadwear.

Checking tires

1. New tread
2. Treadwear indicator
3. Worn tread

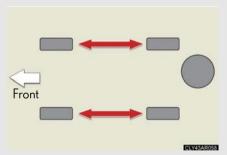
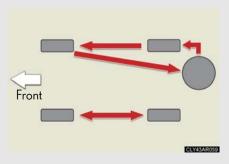
The location of treadwear indicators is shown by the "TWI" or "Δ" marks, etc., molded on the sidewall of each tire.

Check spare tire condition and pressure if not rotated.

Tire rotation

▶ Vehicles with a compact spare tire

Rotate the tires in the order shown.

To equalize tire wear and extend tire life, Lexus recommends that tire rotation is carried out at the same interval as tire inspection.

▶ Vehicles with a full-size spare tire

Rotate the tires in the order shown.

To equalize tire wear and extend tire life, Lexus recommends that tire rotation is carried out at the same interval as tire inspection.

- **The tire pressure warning system**

  Your Lexus is equipped with a tire pressure warning system that uses tire pressure warning valves and transmitters to detect low tire inflation pressure before serious problems arise. (→P. 537, 545)

Installing tire pressure warning valves and transmitters

When replacing tires or wheels, tire pressure warning valves and transmitters must also be installed.

When new tire pressure warning valves and transmitters are installed, new tire pressure warning valve and transmitter ID codes must be registered in the tire pressure warning computer and the tire pressure warning system must be initialized. Have the tire pressure warning valve and transmitter ID codes registered by your Lexus dealer. (→P. 481)

Initializing the tire pressure warning system

- **The tire pressure warning system must be initialized in the following circumstances:**
  - When the tire inflation pressure is changed such as when changing travelling speed or load weight
  - When changing the tire size

  When the tire pressure warning system is initialized, the current tire inflation pressure is set as the benchmark pressure.

How to initialize the tire pressure warning system

STEP 1 Park the vehicle in safe place and turn the “ENGINE START STOP” switch off.

While the vehicle is moving, initialization is not performed.

STEP 2 Adjust the tire inflation pressure to the specified cold tire inflation pressure level. (→P. 602)

Make sure to adjust the tire pressure to the specified cold tire inflation pressure level. The tire pressure warning system will operate based on this pressure level.

STEP 3 Turn the “ENGINE START STOP” switch to IGNITION ON mode.

STEP 4

Press and hold the tire pressure warning reset switch until the tire pressure warning light flashes slowly 3 times.

STEP 5 Wait for a few minutes in “ENGINE START STOP” switch to on, and then turn the “ENGINE START STOP” switch off.

Registering ID codes

The tire pressure warning valve and transmitter is equipped with a unique ID code. When replacing a tire pressure warning valve and transmitter, it is necessary to register the ID code. Have the ID code registered by your Lexus dealer.

When to replace your vehicle's tires

Tires should be replaced if:

- You have tire damage such as cuts, splits, cracks deep enough to expose the fabric, and bulges indicating internal damage.
- A tire goes flat repeatedly or cannot be properly repaired due to the size or location of a cut or other damage.

If you are not sure, consult with your Lexus dealer.

Replacing tires and wheels

If the ID code of the tire pressure warning valve and transmitter is not registered, the tire pressure warning system will not work properly. After driving for about 20 minutes, the tire pressure warning light flashes for 1 minute and stays on to indicate a system malfunction.

Tire life

- Standard tire over 6 years old must be checked by a qualified technician even if they have seldom or never been used or damage is not obvious.
- The compact spare tire could be deformed gradually in the long term even if you don't use it. Be sure to have the compact spare tire checked by your Lexus dealer if it is over 5 years.

If the tread on snow tires wears down below 0.16 in. (4 mm)

The effectiveness of the tires as snow tires is lost.

Maximum load of tire

Check that the number given by dividing the maximum load by 1.10 of the replacement tire is greater than 1/2 of the Gross Axle Weight Ratings (GAWR) of either the front axle or the rear axle, whichever is greater.

For the GAWR, see the Certification Label. For the maximum load of the tire, see the load limit at maximum cold tire inflation pressure mentioned on the sidewall of the tire. (→P. 609)

Tire types

1 Summer tires

Summer tires are high-speed performance tires best suited to highway driving under dry conditions. Since summer tires do not have the same traction performance as snow tires, summer tires are inadequate for driving on snow-covered or icy roads. For driving on snow-covered roads or icy roads, the use of snow tires is recommended. When installing snow tires, be sure to replace all four tires.

2 All season tires

All season tires are designed to provide better traction in snow and to be adequate for driving in most winter conditions, as well as for use year round. All season tires, however, do not have adequate traction performance compared with snow tires in heavy or loose snow. Also, all season tires fall short in acceleration and handling performance compared with summer tires in highway driving.

3 Snow tires

For driving on snow-covered roads or icy roads, we recommend using snow tires. If you need snow tires, select tires of the same size, construction and load capacity as the originally installed tires. Since your vehicle has radial tires as original equipment, make sure your snow tires also have radial construction. Do not install studded tires without first checking local regulations for possible restrictions. Snow tires should be installed on all wheels. (→P. 254)

■ **Initializing the tire pressure warning system**

Initialize the tire pressure warning system with the tire inflation pressure adjusted to the specified level.

■ **If you push the tire pressure warning reset switch accidentally**

If initialization is performed, adjust the tire inflation pressure to the specified level and initialize the tire pressure warning system again.

■ **When the initialization of the tire pressure warning system has failed**

Initialization can be completed in a few minutes. However, in the following cases, the settings have not been recorded and the system will not operate properly. If repeated attempts to record tire inflation pressure settings are unsuccessful, have the vehicle inspected by your Lexus dealer.

- When operating the tire pressure warning reset switch, the tire pressure warning light does not flash 3 times.
- After carrying out the initialization procedure, the tire pressure warning light flashes for 1 minute then stays on after driving for 20 minutes.

■ **Routine tire inflation pressure checks**

The tire pressure warning system does not replace routine tire inflation pressure checks. Make sure to check tire inflation pressure as part of your routine of daily vehicle checks.

n **Tire pressure warning system certification**

TPMS Transmitter	FCC ID: PAXPMV107J
	IC ID: 3729A-PMV107J
TPMS Receiver	FCC ID: HYQ13BCX
	IC ID: 1551A-13BCX

▶ For vehicles sold in the U.S.A.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC WARNING:
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

▶ For vehicles sold in Canada

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

L'utilisation de ce dispositif est autorisée seulement aux deux conditions suivantes: (1) il ne doit pas produire de brouillage, et (2) l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

CAUTION

Tire pressure warning system operation

The tire pressure warning system may not provide warning immediately if a tire bursts or if sudden air leakage occurs.

When inspecting or replacing tires

Observe the following precautions to prevent accidents. Failure to do so may cause damage to parts of the drive train, as well as dangerous handling characteristics, which may lead to an accident resulting in death or serious injury.

- Do not mix tires of different makes, models or tread patterns. Also, do not mix tires of remarkably different treadwear.
- Do not use tire sizes other than those recommended by Lexus.
- Do not mix differently constructed tires (radial, bias-belted or bias-ply tires).
- Do not mix summer, all season and snow tires.
- Do not use tires that have been used on another vehicle.
  Do not use tires if you do not know how they were used previously.

When initializing the tire pressure warning system

Do not push the tire pressure warning reset switch without first adjusting the tire inflation pressure to the specified level. Otherwise, the tire pressure warning light may not come on even if the tire inflation pressure is low, or it may come on when the tire inflation pressure is actually normal.

NOTICE

- **Repairing or replacing tires, wheels, tire pressure warning valves, transmitters and tire valve caps**
  - When removing or fitting the wheels, tires or the tire pressure warning valve and transmitter, contact your Lexus dealer as the tire pressure warning valves and transmitter may be damaged if not handled correctly.
  - When replacing tire valve caps, do not use tire valve caps other than those specified. The cap may become stuck.
- **To avoid damage to the tire pressure warning valves and transmitters**

  When a tire is repaired with liquid sealants, the tire pressure warning valve and transmitter may not operate properly. If a liquid sealant is used, contact your Lexus dealer or other qualified service shop as soon as possible. Make sure to replace the tire pressure warning valve and transmitter when replacing the tire. (→P. 479)
- **Driving on rough roads**

  Take particular care when driving on roads with loose surfaces or potholes.
  These conditions may cause losses in tire inflation pressure, reducing the cushioning ability of the tires. In addition, driving on rough roads may cause damage to the tires themselves, as well as the vehicle’s wheels and body.
- **If tire inflation pressures become low while driving**

  Do not continue driving, or your tires and/or wheels may be ruined.

Tire inflation pressure

Tire inflation pressure

The recommended cold tire inflation pressure and tire size is displayed on the tire and loading information label. (→P. 602)

Inspection and adjustment procedure

1 Tire valve

2 Tire pressure gauge

STEP 1 Remove the tire valve cap.

STEP 2 Press the tip of the tire pressure gauge onto the tire valve.

STEP 3 Read the pressure using the gauge graduations.

STEP 4 If the tire inflation pressure is not at the recommended level, adjust the pressure.
If you add too much air, press the center of the valve to deflate.

STEP 5 After completing the tire inflation pressure measurement and adjustment, apply soapy water to the valve and check for leakage.

STEP 6 Put the tire valve cap back on.

n **Tire inflation pressure check interval**

You should check tire inflation pressure every two weeks, or at least once a month. Do not forget to check the spare.

n **Effects of incorrect tire inflation pressure**

Driving with incorrect tire inflation pressure may result in the following:

l Reduced fuel efficiency

l Reduced driving comfort and tire life

l Reduced safety

l Damage to the drive train

If a tire needs frequent inflating, have it checked by your Lexus dealer.

n **Instructions for checking tire pressure**

When checking tire inflation pressure, observe the following:

l Check only when the tires are cold.
If your vehicle has been parked for at least 3 hours and has not been driven for more than 1 mile or 1.5 km, you will get an accurate cold tire inflation pressure reading.

l Always use a tire pressure gauge.
The appearance of the tire can be misleading. In addition, tire inflation pressures that are even just a few pounds off can degrade ride and handling.

l Do not reduce tire inflation pressure after driving. It is normal for the tire inflation pressure to be higher after driving.

l Never exceed the vehicle capacity weight.
Passengers and luggage weight should be placed so that the vehicle is balanced.

CAUTION

Proper inflation is critical to save tire performance

Keep your tires properly inflated. Otherwise, the following conditions may occur and result in an accident causing death or serious injury:

- Excessive wear
- Uneven wear
- Poor handling
- Possibility of blowouts resulting from overheated tires
- Poor sealing of the tire bead
- Wheel deformation and/or tire separation
- A greater possibility of tire damage from road hazards

NOTICE

When inspecting and adjusting tire inflation pressure

Be sure to put the tire valve caps back on.
Without the valve caps, dirt or moisture could get into the valve and cause air leakage, which could result in an accident. If the caps are lost, replace them as soon as possible.

Wheels

If a wheel is bent, cracked or heavily corroded, it should be replaced. Otherwise, the tire may separate from the wheel or cause a loss of handling control.

Wheel selection

When replacing wheels, care should be taken to ensure that they are equivalent to those removed in load capacity, diameter, rim width, and inset*.
Replacement wheels are available at your Lexus dealer.

*: Conventionally referred to as "offset".

Lexus does not recommend using the following:

- Wheels of different sizes or types
- Used wheels
- Bent wheels that have been straightened

Aluminum wheel precautions

- Use only Lexus wheel nuts and wrenches designed for use with your aluminum wheels.
- When rotating, repairing or changing your tires, check that the wheel nuts are still tight after driving 1000 miles (1600 km).
- Be careful not to damage the aluminum wheels when using tire chains.
- Use only Lexus genuine balance weights or equivalent and a plastic or rubber hammer when balancing your wheels.

When replacing wheels

The wheels of your vehicle are equipped with tire pressure warning valves and transmitters that allow the tire pressure warning system to provide advanced warning in the event of a loss in tire inflation pressure. Whenever wheels are replaced, tire pressure warning valves and transmitters must be installed. (→P. 479)

CAUTION

■ **When replacing wheels**

- Do not use wheels that are a different size from those recommended in the Owner's Manual, as this may result in a loss of handling control.
- Never use an inner tube in a leaking wheel which is designed for a tubeless tire. Doing so may result in an accident, causing death or serious injury.

NOTICE

■ **Replacing tire pressure warning valves and transmitters**

- Because tire repair or replacement may affect the tire pressure warning valves and transmitters, make sure to have tires serviced by your Lexus dealer or other qualified service shop. In addition, make sure to purchase your tire pressure warning valves and transmitters at your Lexus dealer.
- Ensure that only genuine Lexus wheels are used on your vehicle.
  Tire pressure warning valves and transmitters may not work properly with non-genuine wheels.

Air conditioning filter

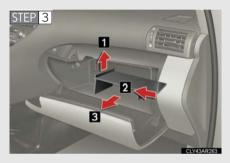
The air conditioning filter must be cleaned or changed regularly to maintain air conditioning efficiency.

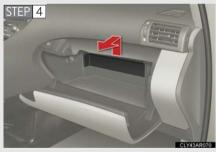
Removal method

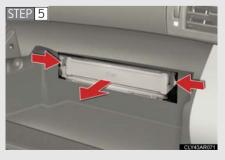
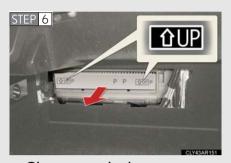
STEP 1 Set the air conditioning system to recirculated mode. (→P. 277)

The air conditioning filter case cannot be removed with the system in outside air mode.

STEP 2 Turn the "ENGINE START STOP" switch off.

STEP 3

Open the glove box door. Lift and remove the partition.

STEP 4

Remove the glove box cover.

STEP 5

Remove the filter cover.

To remove the filter case, lift it up and pull it out. Replace the filter with a new one.

The "↑UP" mark shown on the filter should be pointing up.

Cleaning method

If the filter is dirty, clean by blowing compressed air through the filter from the underside.

Hold the air gun 2 in. (5 cm) from the filter and blow for approximately 2 minutes at 72 psi (500 kPa, 5.0 kgf/cm^2 or bar).

If an air gun is not available, have the filter cleaned by your Lexus dealer.

Checking interval

Inspect and replace the air conditioning filter according to the maintenance schedule. In dusty areas or areas with heavy traffic flow, early replacement may be required. (For scheduled maintenance information, please refer to the "Owner's Manual Supplement" or "Scheduled Maintenance".)

If air flow from the vents decreases dramatically

The filter may be clogged. Check the filter and replace if necessary.

NOTICE

■ **To prevent damage to the system**

- When using the air conditioning system, make sure that a filter is always installed.
- When cleaning the filter, do not clean with water.

Electronic key battery

Replace the battery with a new one if it is depleted.

■ You will need the following items:

- Flathead screwdriver
- Small Phillips-head screwdriver
- Lithium battery (CR1632)

■ Replacing the battery

STEP 1 Take out the mechanical key.

STEP 2 Remove the cover.

STEP 3 Remove the depleted battery.

Insert a new battery with the "+" terminal facing up.

Use a CR1632 lithium battery

- Batteries can be purchased at your Lexus dealer, local electrical appliance shops or camera stores.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to the local laws.

If the electronic key battery is discharged

The following symptoms may occur:

- The smart access system with push-button start and wireless remote control will not function properly.
- The operational range is reduced.

When the card key battery needs to be replaced (if equipped)

The battery for the card key is available only at Lexus dealers. Your Lexus dealer can replace the battery for you.

Removed battery and other parts

Keep away from children. These parts are small and if swallowed by a child, they can cause choking. Failure to do so could result in death or serious injury.

For normal operation after replacing the battery

Observe the following precautions to prevent accidents:

- Always work with dry hands.
  Moisture may cause the battery to rust.
- Do not touch or move any other components inside the remote control.
- Do not bend either of the battery terminals.

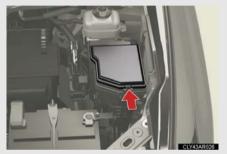
Checking and replacing fuses

If any of the electrical components do not operate, a fuse may have blown. If this happens, check and replace the fuses as necessary.

STEP 1 Turn the “ENGINE START STOP” switch off.

STEP 2 Remove the engine compartment cover. (→P. 464)

STEP 3 Open the fuse box cover.

▶ Engine compartment

Push the tab in and lift the lid off.

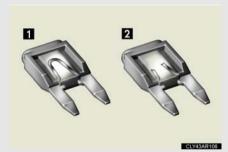
▶ Driver's side instrument panel

Remove the lid.

STEP 4 After a system failure, see “Fuse layout and amperage ratings” for details about which fuse to check. (→P. 501)

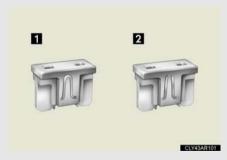
Remove the fuse with the pull-out tool.

STEP 6 Check if the fuse has blown.

▶ Type A

1 Normal fuse

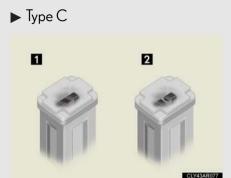
2 Blown fuse

Replace the blown fuse with a new fuse of an appropriate amperage rating. The amperage rating can be found on the fuse box lid.

▶ Type B

1 Normal fuse

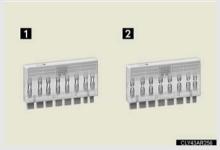
2 Blown fuse

Replace the blown fuse with a new fuse of an appropriate amperage rating. The amperage rating can be found on the fuse box lid.

▶ Type C

1 Normal fuse

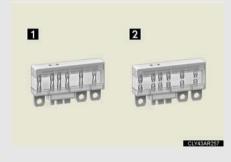
2 Blown fuse

Replace the blown fuse with a new fuse of an appropriate amperage rating. The amperage rating can be found on the fuse box lid.

▶ Type D

1 Normal fuse

2 Blown fuse

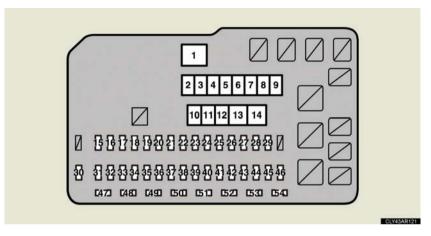
Replace the blown fuse with a new fuse of an appropriate amperage rating. The amperage rating can be found on the fuse box lid.

▶ Type E

1 Normal fuse

2 Blown fuse

Replace the blown fuse with a new fuse of an appropriate amperage rating. The amperage rating can be found on the fuse box lid.

Fuse layout and amperage ratings

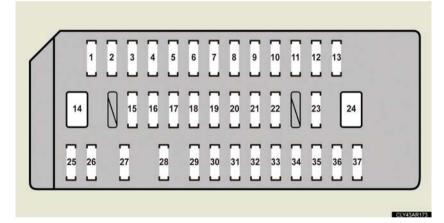
■ Engine compartment

Fuse		Ampere	Circuit
1	RDI FAN NO. 1	80 A	Electric cooling fans
2	RR DEF	50 A	Rear window defogger
3	AIR SUS	50 A	——
4	HTR	50 A	Air conditioning system
5	SPARE	30 A	——
6	SPARE	40 A	——
7	ABS NO. 2	30 A	Anti-lock brake system
8	H-LP CLN	30 A	Headlight cleaner
9	PBD	30 A	Power back door system
10	ST	30 A	Starter system

Fuse		Ampere	Circuit
11	PD	50 A	Daytime running light system, A/F, H-LP RH HI, H-LP LH LO, H-LP RH LO, H-LP LH HI, HORN, S-HORN, multiplex communication system, multiport fuel injection system/ sequential multiport fuel injection system
12	ABS NO. 1	50 A	Anti-lock brake system
13	EPS	60 A	Electric power steering system
14	ALT	140 A	FUEL OPN, DR LOCK, OBD, RR FOG, S/ROOF, 4WD, INVERTER, ECU IG1 NO. 1, ECU IG1 NO. 2, PANEL, GAUGE NO. 1
15	AMP1	30 A	Audio system
16	EFI MAIN	30 A	Multiport fuel injection system/ sequential multiport fuel injection system, EFI NO. 1, EFI NO. 2
17	AMP2	30 A	Audio system
18	IG2	30 A	Starter system, IGN, GAUGE NO. 2, ECU IG2
19	IP JB	25 A	Power door lock system
20	STR LOCK	20 A	Starter system
21	RAD NO. 3	15 A	Meters and gauges lights, instrument panel lights, navigation system, audio system, rear seat entertainment system
22	HAZ	15 A	Emergency flashers

Fuse		Ampere	Circuit
23	ETCS	10 A	Multiport fuel injection system/ sequential multiport fuel injection system
24	RAD NO. 1	10 A	Audio system
25	AM2	7.5 A	Starting system
26	ECU-B NO. 2	7.5 A	Air conditioning system, front passenger occupant classification system, starter system
27	MAYDAY/TEL	7.5 A	Mayday system
28	IMMOBI	7.5 A	———
29	ALT-S	7.5 A	Charging system
30	IGN	10 A	Starter system, multiport fuel injection system/sequential multiport fuel injection system
31	DOME	10 A	Vanity mirror lights, luggage compartment lights, interior lights, personal lights
32	ECU-B NO. 1	7.5 A	Interior lights, personal lights, tilt and telescopic steering, multiplex communication system, meters and gauges, power window, driving position memory system, power seats, power back door, head-up display, starter system, air conditioning system, power door lock system
33	EFI NO. 1	10 A	Multiport fuel injection system/ sequential multiport fuel injection system
34	WIP-S	7.5 A	Windshield wipers and washer

Fuse		Ampere	Circuit
35	AFS	7.5 A	Adaptive front-lighting system
36	BK/UP LP	7.5 A	Back-up lights
37	HEATER NO. 2	7.5 A	Air conditioning system, AWD system
38	ECU IG1	10 A	Adaptive front-lighting system, headlight cleaner, cooling fan, cruise control, vehicle stability control, vehicle dynamics integrated management
39	EFI NO. 2	10 A	Multiport fuel injection system/ sequential multiport fuel injection system
40	F/PUMP	15 A	Multiport fuel injection system/ sequential multiport fuel injection system
41	DEICER	25 A	Windshield wipers and washer
42	STOP	7.5 A	Vehicle stability control, vehicle dynamics integrated management, high mounted stoplight
43	TOWING BATT	20 A	Trailer battery
44	TOWING	30 A	Trailer lights
45	FILTER	10 A	Condenser
46	IG1 MAIN	30 A	ECU IG1, BK/UP LP, HEATER NO. 2, AFS
47	H-LP RH HI	15 A	Right-hand headlight (high beam)
48	H-LP LH HI	15 A	Left-hand headlight (high beam)
49	BIXENON	10 A	Discharge headlight
50	H-LP RH LO	15 A	Right-hand headlight (low beam)
51	H-LP LH LO	15 A	Left-hand headlight (low beam)

Fuse		Ampere	Circuit
52	HORN	10 A	Horn
53	A/F	20 A	Multiport fuel injection system/ sequential multiport fuel injection system
54	S-HORN	7.5 A	Security horn

■ Driver's side instrument panel

Fuse		Ampere	Circuit
1	P/POINT	15 A	Power outlet
2	ECU-ACC	10 A	Navigation system, outside rear view mirror, multiplex communication system, multi-information display, head-up display
3	CIG	15 A	Power outlet
4	RADIO NO. 2	7.5 A	Audio system, power outlet
5	GAUGE NO. 1	10 A	Emergency flashers, navigation system, head-up display

4
Maintenance and care

Fuse		Ampere	Circuit
6	ECU-IG1 NO. 3	10 A	Outside rear view mirror, windshield wipers and washer, seat heaters, starter system, power outlet, moon roof, Automatic High Beam
7	ECU-IG1 NO. 1	10 A	Multiplex communication system, electric power steering system, shift lock control system, tilt and telescopic steering, starter system, automatic transmission system, power back door, tire pressure warning system
8	S/ROOF	30 A	Moon roof
9	FUEL OPN	7.5 A	Fuel filler door opener
10	PSB	30 A	Pre-collision seat belt
11	TI & TE	30 A	Tilt and telescopic steering system
12	DR LOCK	10 A	Power door lock system
13	FR FOG	15 A	Front fog lights
14	P-SEAT LH	30 A	Power seat (left-side)
15	4WD	7.5 A	AWD system
16	INVERTER	20 A	――
17	RR FOG	7.5 A	――
18	D/L ALT B	25 A	Multiplex communication system
19	HEATER	10 A	Air conditioning system
20	ECU-IG1 NO. 2	10 A	Air conditioning system, multiport fuel injection system/sequential multiport fuel injection system, SRS airbag system, multi-information display

Fuse		Ampere	Circuit
21	PANEL	10 A	Switch illumination, navigation system, headlight cleaner, windshield wiper de-icer, seat heater, power back door, audio system, multi-information display, air conditioning system
22	TAIL	10 A	Parking lights, side marker lights, tail lights, license plate lights, front fog lights, towing converter
23	AIR SUS	20 A	———
24	P-SEAT RH	30 A	Power seat (right-side)
25	OBD	7.5 A	On-Board diagnosis
26	FR DOOR	25 A	Front power window (right-side)
27	RR DOOR	25 A	Rear power window (right-side)
28	FL DOOR	25 A	Front power window (left-side)
29	RL DOOR	25 A	Rear power window (left-side)
30	FR WASH	25 A	Windshield wipers and washer
31	RR WIP	15 A	Windshield wipers and washer
32	RR WASH	20 A	Windshield wipers and washer
33	FR WIP	30 A	Windshield wipers and washer
34	ECU IG2	10 A	Starter system, Intuitive parking assist, AWD system
35	GAUGE NO. 2	7.5 A	Starter system
36	RH S-HTR	15 A	Seat heater (right-side)
37	LH S-HTR	15 A	Seat heater (left-side)

After a fuse is replaced

- If the lights do not turn on even after the fuse has been replaced, a bulb may need replacement. (→P. 511)
- If the replaced fuse blows again, have the vehicle inspected by your Lexus dealer.

If there is an overload in the circuit

The fuses are designed to blow, protecting the wiring harness from damage.

⚠ CAUTION

To prevent system breakdowns and vehicle fire

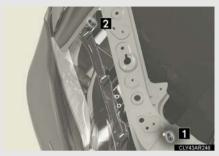
Observe the following precautions.
Failing to do so may cause damage, and possibly a fire or injury.

- Never use a fuse of a higher amperage rating than indicated, or use any other object in place of a fuse.
- Always use a genuine Lexus fuse or equivalent.
  Never replace a fuse with a wire, even as a temporary fix.
  This can cause extensive damage or even fire.
- Do not modify fuse or fuse boxes.

Before replacing fuses

Have the cause of electrical overload determined and repaired by your Lexus dealer.

Headlight aim (discharge headlights)

Vertical movement adjustment bolts

1 Adjustment bolt A

2 Adjustment bolt B

Before checking the headlight aim

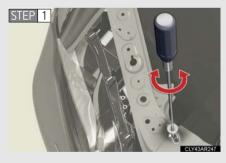
STEP 1 Remove the engine compartment cover. (→P. 464)

STEP 2 Make sure the vehicle has a full tank of gas and the area around the headlight is not deformed.

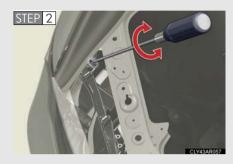
STEP 3 Park the vehicle on level ground.

STEP 4 Sit in the driver's seat.

STEP 5 Bounce the vehicle several times.

Adjusting the headlight aim

STEP 1

Turn bolt A in either direction using a Phillips-head screw-driver.

Remember the turning direction and the number of turns.

Turn bolt B the same number of turns and in the same direction as in step 1 using a Phillips-head screwdriver.

If the headlight cannot be adjusted using this procedure, take the vehicle to your Lexus dealer to adjust the headlight aim.

Light bulbs

You may replace the following bulbs by yourself. The difficulty level of replacement varies depending on the bulb. If necessary bulb replacement seems difficult to perform, contact your Lexus dealer.
For more information about replacing other light bulbs, contact your Lexus dealer.

Preparing for light bulb replacement

Check the wattage of the light bulb to be replaced. (→P. 605)

Removing the engine compartment covers

→P. 464

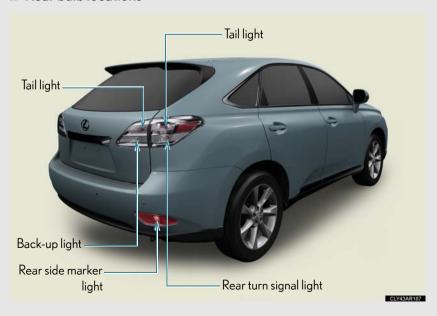
Turning off the power back door main switch (if equipped)

→P. 52

Front bulb locations

▶ Discharge headlights

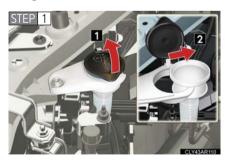
▶ Halogen headlights

n Rear bulb locations

Replacing light bulbs

n Daytime running lights (discharge headlights)

Turn the bulb base counterclockwise.

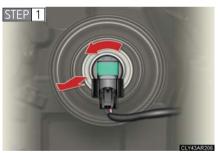
Unplug the connector while depressing the lock release.

n Headlight high beams and daytime running lights (halogen headlights)

Right side only:

1. Open the cap.
2. Move the washer fluid filler opening to allow easy access to the light bulbs.

Turn the bulb base counterclockwise.

Unplug the connector while depressing the lock release.

n Headlight low beams (halogen headlights)

Turn the bulb base counterclockwise.

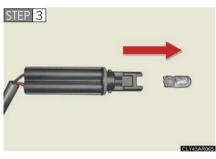
Unplug the connector while pressing the lock release.

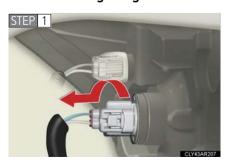
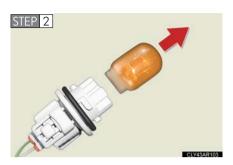
Parking lights

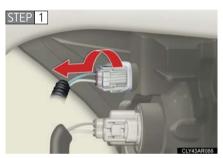
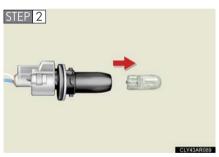
Right side only:

1 Open the cap.

2 Move the washer fluid filler opening to allow easy access to the light bulbs.

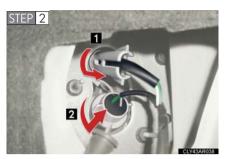
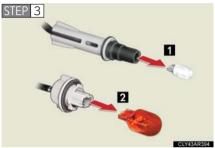
Turn the bulb base counterclockwise.

Remove the light bulb.

Front turn signal lights

Turn the bulb base counterclockwise.

Remove the light bulb.

n Front side marker lights

Turn the bulb base counterclock-wise.

Remove the light bulb.

n Rear turn signal and tail lights

Remove the access hole cover.

Use a flathead screwdriver wrapped in a cloth.

Turn the bulb base counterclockwise.

1 Tail light

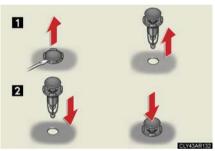
2 Rear turn signal light

Remove the light bulb.

1 Tail light

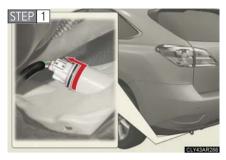
2 Rear turn signal light

Rear side marker lights (right side)

Remove the bolts using a Phillips-head screwdriver, and remove the clip.

1 Removing the clip
2 Installing the clip

Turn the bulb base counterclockwise.

Remove the light bulb.

Rear side marker lights (left side)

Turn the bulb base counterclockwise.

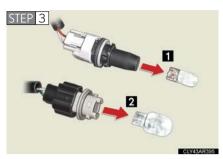
Remove the light bulb.

Tail and back-up lights

Remove the access hole cover.

Use a flathead screwdriver wrapped in a cloth.

Turn the bulb base counterclockwise.

1 Tail light

2 Back-up light

Remove the light bulb.

1 Tail light

2 Back-up light

Lights other than the above

If any of the lights listed below has burnt out, have it replaced by your Lexus dealer.

- Headlight low beams (discharge bulbs)
- Headlight high and low beams (discharge bulbs)
- Front fog lights
- Side turn signal lights
- Stop lights
- High mounted stoplight
- License plate lights

- **Discharge headlights (if equipped)**

  If voltage to the discharge bulbs is insufficient, the bulbs may not come on, or may go out temporarily. The discharge bulbs will come on when normal power is restored.

- **LED bulbs**

  The stop lights, side turn signal lights, license plate lights and high mounted stoplight consist of a number of LEDs. If any of the LEDs burn out, take your vehicle to your Lexus dealer to have the light replaced.

- **Condensation build-up on the inside of the lens**

  Contact your Lexus dealer for more information in the following situations. Temporary condensation build-up on the inside of the headlight lens does not indicate a malfunction.

  - Large drops of water are built up on the inside of the lens.
  - Water has built up inside the headlight.

CAUTION

- **Replacing light bulbs**
  - Turn off the lights. Do not attempt to replace the bulb immediately after turning off the lights.
    The bulbs become very hot and may cause burns.
  - Do not touch the glass portion of the light bulb with bare hands. Hold the bulb by the plastic or metal portion.
    If the bulb is scratched or dropped it may blow out or crack.
  - Fully install light bulbs and any parts used to secure them. Failing to do so may result in heat damage, fire, or water entering the headlight unit. This may damage the headlights or cause condensation to build up on the lens.
- **Discharge headlights (if equipped)**
  - Contact your Lexus dealer before replacing discharge headlights (including light bulbs).
  - Do not touch the discharge headlight's high voltage socket when the headlights are turned on.
    An extremely high voltage of 20000 V will be discharged and could result in serious injury or death by electric shock.
  - Do not attempt to take apart or repair the low beam discharge headlight bulbs, connectors, power supply circuits, or related components.
    Doing so could result in electric shock and serious injury or death.
- **To prevent damage or fire**

  Make sure bulbs are fully seated and locked.